CDM Smith

Memorandum

To: *Mike Cirian, USEPA*

From: *Scott Adamek, P.E.; Sean Coan, P.G.*

Date: *March 2, 2017*

Subject: *Draft Comments – CFAC Remedial Investigation Comments from Former CFAC Employee, Former Primary Aluminum Reduction Facility, Columbia Falls, Montana*

CDM Federal Programs Corporation (CDM Smith), at the request of the United States Environmental Protection Agency (USEPA), has reviewed public comments submitted to USEPA from a former Columbia Falls Aluminum Company LLC (CFAC) employee, identified as "Nino", on the Remedial Investigation/Feasibility Sampling and Analysis Plan Addendum (SAP Addendum). Comments are organized in General and Specific Comments. CDM Smith has saved the original MHTML document as a DOCX file to ease the review. Specific Comments are organized by corresponding pages and paragraph number within the DOCX version of the letter (attached).

General Comments

1) The comments letter received from Nino offer a detailed explanation of aluminum reduction plant processes, presents a number of operational decisions at the facility that may have contributed to environmental impacts at the site, and identifies a number of areas of interest based on institutional and operational knowledge.

Specific Comments

1) Page 5, 1st paragraph: To clarify the intent of the paragraph, it is important to note that the term 'reactor' refers to the structure more commonly called a 'pot'.

2) Page 6, 7th full paragraph: This discussion of power consumption at the facility is not very useful since it is missing voltage which is needed to convert amps to watts which is the accepted way of measuring power. This also assumes the reader is familiar with the conversion of AC to DC in order to operate the cells.

3) Page 7, 1st full paragraph: 'Coal tar pitch' is also referred to as 'hard pitch'. Information missing from the discussion is the consumption rate of the large carbon bricks used to make the cathodes (pots) which elsewhere can be about 10 tons per pot and each pot lasts about 3 to 4 years – this waste stream is the "spent potliner". There are also ceramic/firebrick materials used to make the potliners – and they range from 3000 to 4000 bricks for each pot. When spent, a portion of the carbon-impacted ceramic brick material may also become spent potliner.

4) Page 7, 2nd paragraph: The discussion of cryolite consumption in this paragraph adds little value. Bath (depending on the exact process) is composed of cryolite, aluminum fluoride, fluorspar, and soda ash. Use the following as a rule of thumb for the rate of consumption to make 1 pound of aluminum: it takes 0.01 pounds (lbs) of cryolite, 0.45 lbs of aluminum fluoride, 0.002 lbs of fluorspar, and 0.002 lbs of soda ash.

5) Page 7, 3rd paragraph: There is not enough information presented in the discussion to back-check these calculations. The larger questions are: How did the fluoride go into the environment? Was the release through solid, liquid, and air transport?

6) Page 7, 4th paragraph: A review of the operating records is key to the investigation. The following minimal information will be instrumental in guiding the investigation: annual production of aluminum, annual consumption of carbon streams (pitch, coke, brick, etc.), annual consumption of batch components, and then annual waste stream production (i.e., scrubber water and sludge from the scrubbers and other semi-liquid waste streams).

7) Page 9, 2nd full paragraph: The location or locations that cells were destroyed could be a significant source of cyanide.

8) Page 9, last paragraph: As stated in the letter, these carbon-handling processes are a source of polyaromatic hydrocarbon (PAH) compounds. Nearby buried piles and recycled water/wastewater streams that were involved in these processes should be identified.

9) Page 10, 2nd and 3rd full paragraphs: Paste plant and briquette cooling process water would contain significant PAHs. The final disposition of these waste streams into the northeast and northwest percolation ponds should be verified.

10) Page 11, 2nd full paragraph: The concerns raised in the discussion of the percolation ponds and production wells are valid. This discussion strengthens the recommendation for porewater analysis to determine groundwater/surface water interaction in this area.

11) Pate 12, 1st full paragraph: This discussion raises some very good points regarding the possible existence of undocumented and unaccounted for waste dumps.

12) Page 13, Comment on Cedar Creek Reservoir Overflow: Flooding from the ditch to the areas directly upgradient of the potline structures and waste dumps could be a potentially large source for cyanide.

13) Page 14, Comment on Flathead River, 1st full paragraph: The nature of the plateau identified near the seep should be considered. The investigation should include identification of all potential seeps in direct proximity to the facility.

14) Page 15, Comment on Landfills, 2nd paragraph: The elevation of the bottom of the west landfill and wet scrubber pond should be investigated.

15) Page 15, Comment on Percolation Ponds, 4th full paragraph on page: The depth and nature of the black soil in the north-east percolation pond should be investigated.

16) Page 16, Comment on West Percolation Pond, 3rd full paragraph on page: The claims made here, that the west percolation may have been moved or covered over by a parking lot, and the assertion that laboratory hoods and sinks drained into the pond, should be investigated.

17) Page 17, Comment on Potline Buildings: Concrete from the potline buildings is likely very rich in fluoride and, if used for fill, could become a source of fluoride to groundwater. Furthermore, the oil found in the electrical tunnel under the potline building raises the potential for polychlorinated biphenyl (PCB) compounds to be present. Understanding the structures and any potential sources related to them is crucial.

18) Page 18, Comment on the Rectifier Yard: The east rectifier yard should be investigated for PCBs and dioxins.

19) Page 20, Comment on the Soil Gas Screening: The soil gas data should be reevaluated based on these descriptions.